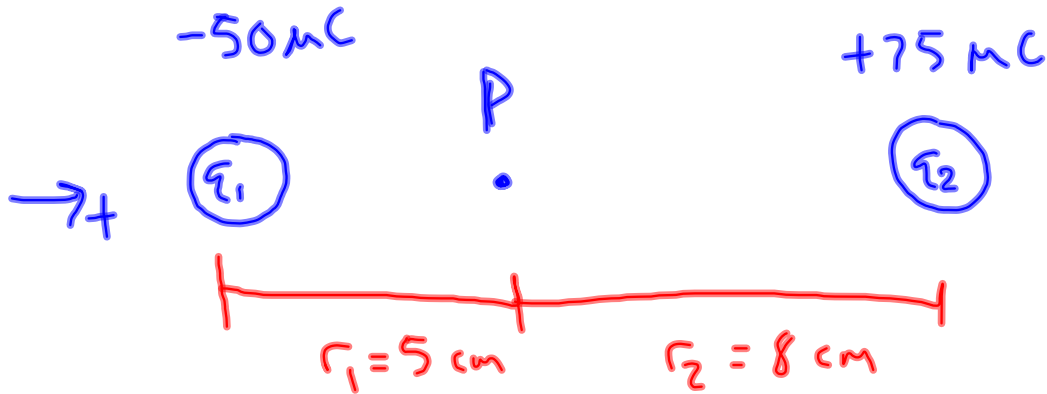


Electrostatics Practice Problem 11.7.11 AP Physics

Two charges and a point lie along a line, with the point between the two charges. Charge 1 is 5 cm from the point, and has a charge of -50 microC. Charge 2 is on the other side the point at 8 cm away, and has a charge of +75 microC. What is the net electric field (magnitude and direction) at the point?



$$\vec{E}_{\text{net}} = \vec{E}_1 + \vec{E}_2$$

$$= -\frac{k|q_1|}{r_1^2} + -\frac{k|q_2|}{r_2^2}$$

$$= -\frac{(8.99 \times 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2)(50 \times 10^{-6} \text{ C})}{(0.05 \text{ m})^2} -$$

$$\frac{(8.99 \times 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2)(75 \times 10^{-6} \text{ C})}{(0.08 \text{ m})^2}$$

$$= -2.85 \times 10^8 \text{ N/C}$$